

WHAT IS CLAIMED:

1. A microcapsule for delivering an active to a selected region of the gastrointestinal tract in a mammalian body, the microcapsule comprising a lipid-based core encapsulated in an enteric polymer shell, wherein said lipid-based core comprises at least one lipidic carrier forming a liquid or solid molecular dispersion matrix and one or more sparingly water-soluble actives within said matrix, and wherein said enteric polymer shell exhibits negligible dissolution in an acid environment.
2. The microcapsule of claim 1, wherein said one or more sparingly water-soluble actives is present in said lipid-based core in an amount about 0.01 wt.% to about 20 wt.% based on the total weight of the lipid-based core.
3. The microcapsule of claim 1, wherein said lipid-based core further comprises an ester selected from the group consisting of one or more medium chain fatty acid esters, long chain fatty acid esters, and any combinations thereof.
4. The microcapsule of claim 3, wherein said medium chain fatty acid esters and said long chain fatty acid esters are mixed glycerides that have the ability to modulate rigidity of said molecular dispersion.
5. The microcapsule of claim 3, wherein said medium chain fatty acid esters, long chain fatty acid esters, and any combinations thereof is present in said lipid-based core in an amount about 75 wt.% to about 99.99 wt.% based on the total weight of the lipid-based core.
6. The microcapsules of claim 1, wherein said lipid-based core further comprises one or more lipid-based surfactants.
7. The microcapsule of claim 6, wherein said one or more lipid-based surfactants is present in said lipid-based core in an amount about 0 wt.% to about 25 wt.% based on the total weight of the lipid-based core.
8. The microcapsule of claim 1, wherein said lipid-based core further comprises one or more solubilization enhancers.

9. The microcapsule of claim 8, wherein said one or more solubilization enhancers is present in said lipid-based core in an amount about 0.01 wt.% to about 10 wt.% based on the total weight of the lipid-based core.

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10. The microcapsule of claim 1, wherein said lipid-based core has a payload from about 10 wt.% to about 80 wt.% based on the total weight of the microcapsule.

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11. The microcapsule of claim 1, wherein said enteric polymer shell is formed from one or more materials selected from the group consisting cellulose acetate phthalate, hydropropyl methylcellulose phthalate, hydroxypropyl methylcellulose acetate succinate, alkali-soluble acrylic copolymer, polyvinyl acetate phthalate, alginates, or combinations thereof.

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12. The microcapsule of claim 1, wherein said enteric polymer shell further comprises one or more materials selected from the group consisting of a plasticizer, pigment, and combinations thereof.

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13. A method of preparing an active agent for delivery to a selected region in the gastrointestinal tract in a mammalian body comprising the steps of:

encapsulating a lipid-based core having a liquid or solid molecular dispersion with one or more sparingly water-soluble actives in an enteric polymer shell;

wherein said enteric polymer shell exhibits negligible dissolution in an acidic

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environment; and

wherein said one or more sparingly water-soluble actives are released from said microcapsule when exposed to an alkaline environment.

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14. The method of claim 13, wherein said lipid-based core is encapsulated in said enteric polymer shell by centrifugal coextrusion.

15. A method for producing a microcapsule comprising the steps of:

a. extruding a first rod having a lipid-based core material;

- b. co-extruding a second rod having an enteric polymer shell material concentrically with said first rod thereby forming a composite rod, wherein said second rod encapsulates said first rod; and
- 5 c. causing the composite rod to elongate and separate by centrifugal force into distinct microcapsules having a lipid-based core material encapsulated in said enteric polymer shell material.

16. The method of claim 15 further comprising the step hardening the enteric polymer shell material by immersing said distinct microcapsules into an acid collection bath.

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17. The method of claim 16 wherein the acid collection bath has a pH of from about 1 to about 4.

15 18. The method of claim 17 wherein the acid collection bath has a pH of from about 2 to about 3.

19. The method of claim 18 wherein the acid collection bath is maintained at temperature of less than about 25°C.